

Dual tasking/dvostruki trening/kognitivno-motorički trening u sportu. TESTIRANJE, PREVENCIJA, REHABILITACIJA.

👉 **The effects of cognitive-motor dual-task training on athletes' cognition and motor performance.** Wu et al.; 2024
<https://pubmed.ncbi.nlm.nih.gov/38390413/>

Results: After screening 2,094 articles, we included 10 acute studies and 7 chronic studies.

Conclusion: This systematic review shows that athletes typically show a degradation of performance in CMDT situations as opposed to ST when evaluated transversally. However, this performance decline is notably reduced following longitudinal training in CMDT, indicating the effectiveness of sustained CMDT training in enhancing cognitive-motor performance under dual-task conditions. Our study provides new insights into the application of CMDT in the field of sports training. Practitioners can utilize CMDT to assess athletic skill levels or optimize cognitive-motor performance of athletes, taking into account the specific needs of each sport.

👉 **Dual-Task Assessment in ACL Rehabilitation: A Step Towards Reducing Re-Injury Risk.** Ricupito et al.; 2024.
<https://pubmed.ncbi.nlm.nih.gov/39758699/>

Key Findings and Clinical Implications:

- **Performance Differences Between Limbs:** As expected, THD (triple hop distance) performance was significantly better in the healthy limb compared to the operated limb under both ST and DT conditions. However, an unexpected finding was that the dual-task cost (DTC) was lower for the post-operative limb, suggesting that the injured limb may have adapted better to cognitive-motor challenges due to targeted rehabilitation interventions.
- **Impact of Neurocognitive Training:** Patients in this study had incorporated neurocognitive training into their rehabilitation, which likely contributed to the post-operative limb's improved adaptability to DT conditions. This underscores the importance of integrating cognitive challenges into ACL rehabilitation to enhance motor control and decision-making under stress.
- **Implications for Re-Injury Prevention:** Since cognitive overload can increase injury risk, incorporating neurocognitive elements into functional testing may provide a more accurate assessment of an athlete's ability to handle real-world demands. Future research should explore the impact of dual-task training on re-injury rates and long-term functional outcomes.

👉 **Effects of Anticipation and DualTasking on Lower Limb Biomechanics While Performing ChangeofDirection Tasks in Physically Active Individuals:** A Systematic Review with MetaAnalysis; Ebner et al.; 2025
<https://pubmed.ncbi.nlm.nih.gov/40111742/>

Results: The meta-analysis included 17 studies involving 355 individuals from different sports (e.g., soccer, American Football). No statistically significant differences were found between unanticipated and anticipated CODs for knee abduction and flexion moments as well as knee abduction angles ($p > 0.05$). Significantly higher knee flexion angles were found in unanticipated CODs (SMD = 0.74, 95% CI: 0.30-1.19; $p < 0.01$). Qualitative analyses of six studies including 171 individuals provided initial evidence for higher knee abduction moments and flexion angles during anticipated CODs while performing a secondary task concurrently.

Conclusion: Findings from quantitative and qualitative analyses indicate that anticipation and dual-tasking during COD performance have an impact on injury-related aspects of lower limb biomechanics. Hence, cognitive challenges should be implemented in injury risk screening and preventive strategies.



👉 Cognitive Motor Dual Tasking as a Game-Changer in Basketball Training Programs: A New Approach to Developing Elite Basketball Players; Shalom et al.; 2025
<https://doi.org/10.3389/fpsyg.2025.1665556>

At the highest levels of competition, what truly separates excellent players from the rest is their ability to produce explosive power as a quick response to unexpected situations, while also making accurate decisions under pressure (Haugan et al., 2025). A successful player is not defined by physical strength alone, but by the ability to combine high power with quick perception, psychomotor responsiveness, and cognitive control in unpredictable, open-skill environments. In this sense, cognitive performance is not a secondary element but rather a central part of developing elite level players, and accordingly, the perception of cognitive effort should be taken into account. (Halperin & Vigotsky, 2024; Zhang et al., 2025).

The CMDT training shows high potential not only for enhancing performance in dynamic contexts, but also as a rehabilitative tool during return-to-play processes. Even when physical limitations exist, the brain can continue to be trained through relevant movement-based tasks, helping to maintain or even strengthen specific skills that are still trainable.